



# Preface

The mid-IR through millimeter wavelength regime is becoming increasingly important for understanding the universe's fundamental processes. The combination of new detector technologies in increasing arrays and larger, colder apertures is bringing the far-IR / submillimeter regime of age, revealing otherwise undetected activity on all scales: from protostellar collapse and planet-bearing debris disks in our Galaxy, to the global history of dust-obscured energy release through cosmic time. This revolution is just beginning – the far-IR / submillimeter capabilities are still developing and maturing, and unlike the shorter wavelengths, there are still orders of magnitude of improvement possible before fundamental measurement limits are reached. The technologies required for far-IR astrophysics are unique. Unlike at shorter wavelengths, where astrophysics has been the beneficiary of technologies developed by the military and elsewhere, far-IR detectors and instruments must be custom-built by the researchers themselves. Ongoing dialog between astrophysicists and technology experts is thus critical to plan for the future and insure the best technology investments to achieve our long-term scientific goals.

This conference, *From Spitzer to Herschel and Beyond, the Future of Far-Infrared Space Astrophysics* provides a forum for this discussion. The far-IR community is gathered to articulate the current scientific questions, examine the technical hurdles of the next two decades, and to plan as a group for the future. The conference is being hosted jointly by the Infrared Processing and Analysis Center (IPAC) at Caltech, and by the Center for Long-Wavelength Astrophysics (CLWA) at JPL. The agenda is framed around a series of scientific and technical oral sessions, interspersed with one another to encourage overlap. Each session includes 3 to 5 talks, all invited in an attempt to gather experts in important fields. To complement the talks, a week-long poster session accommodates a variety of contributed posters with more detailed information. The conference topics include:

- Recent scientific results and technical successes of the Spitzer Space Telescope
- Current astrophysical questions running the gamut from our solar system to the era of reionization
- Progress in critical far-IR technologies, especially detectors and sub-K coolers
- Upcoming missions: Herschel and Astro-F
- The community's plans for future missions: larger, colder telescopes and interferometers

